

## Section 5. Lateral Separation

### 6-5-1. SEPARATION METHODS

Separate aircraft by one of the following methods:

- Clear aircraft on different airways or routes whose widths or protected airspace do not overlap.
- Clear aircraft below 18,000 to proceed to and report over or hold at different geographical locations determined visually or by reference to NAVAID's.
- Clear aircraft to hold over different fixes whose holding pattern airspace areas do not overlap each other or other airspace to be protected.
- Clear departing aircraft to fly specified headings which diverge by at least 45 degrees.

### 6-5-2. MINIMA ON DIVERGING RADIALS

- Consider separation to exist between aircraft:
  - Established on radials of the same NAVAID that diverge by at least 15 degrees when either aircraft is clear of the airspace to be protected for the other aircraft.
  - With non-VOR/DME based navigational equipment established on tracks of the same waypoint that diverge by at least 15 degrees when either aircraft is clear of the airspace to be protected for the other aircraft.

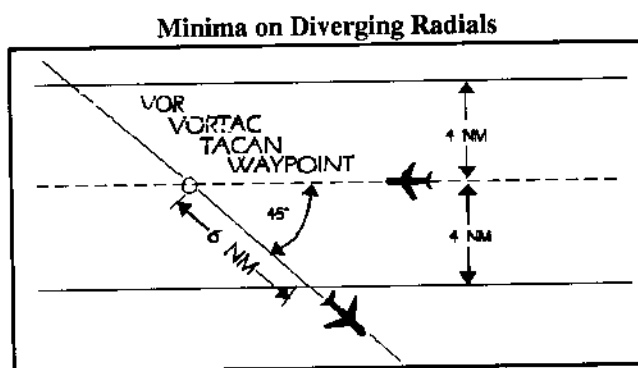


FIG 6-5-1

#### NOTE-

The procedure may be applied to converging as well as diverging aircraft. (See FIG 6-5-1.) The aircraft depicted 6 miles from the NAVAID/waypoint would require vertical separation until reaching the 6-mile point. Reversing direction, the same aircraft would require vertical

separation before passing the 6-mile point. Due to the nature of GPS equipment, issue crossing restrictions in reference to the next waypoint, since the pilot receives tracking "to" data rather than tracking "from" the last waypoint.

- Use the TBL 6-5-1 and TBL 6-5-2 to determine the distance required for various divergence angles to clear the airspace to be protected. For divergence that falls between two values, use the lesser divergence value to obtain the distance.

**Non-DME Divergence  
Distance Minima**

Divergence (Degrees)	Distance (NM)
15	16
20	12
25	10
30	8
35	7
45	6
55	5
90	4

NOTE: This table is for non-DME application only.

TBL 6-5-1

**Divergence  
Distance Minima**

Divergence (Degrees)	Distance (NM)	
	Below FL 180	FL 180 through FL 450
15	17	18
20	13	15
25	11	13
30	9	11
35	8	11
45	7	11
55	6	11
90	5	11

This table is for DME application and compensates for DME slant-range error.

TBL 6-5-2

#### NOTE-

For altitudes of 3,000 feet or less above the elevation of the NAVAID, DME slant-range error is negligible and the values in TBL 6-5-1 may be used.

### 6-5-3. DME ARC MINIMA

Apply lateral DME separation by requiring aircraft using DME to fly an arc about a NAVAID at a specified distance using the following minima: (See FIG 6-5-2.)

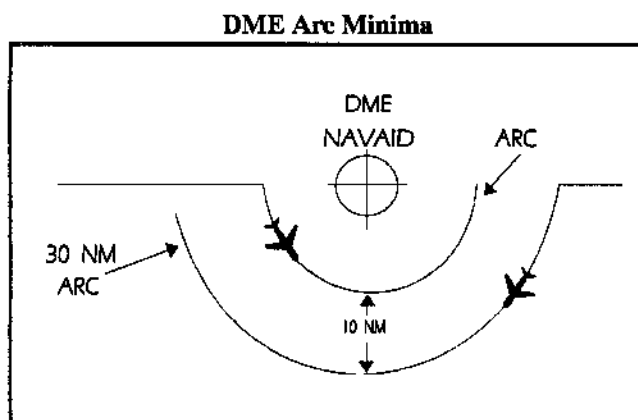


FIG 6-5-2

#### REFERENCE-

FAAO 7110.65, NAVAID Terms, Para 2-5-2.

a. Between different arcs about a NAVAID regardless of direction of flight:

1. At 35 miles or less from the NAVAID- 10 miles.
2. More than 35 miles from the NAVAID- 20 miles.

b. Between an arc about a NAVAID and other airspace to be protected: (See FIG 6-5-3.)

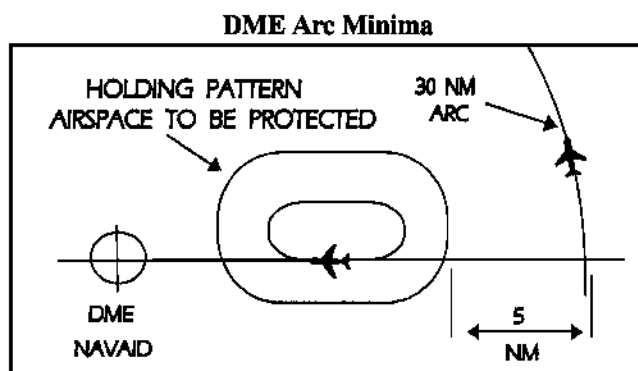


FIG 6-5-3

#### NOTE-

The other airspace to be protected may be a MOA, a holding pattern, airway or route, ATCAA, Warning Area, Restricted Area, Prohibited Area, etc..

1. At 35 miles or less from the NAVAID- 5 miles.

2. More than 35 miles from the NAVAID- 10 miles.

#### PHRASEOLOGY-

VIA (number of miles) MILE ARC (direction) OF (name of DME NAVAID).

### 6-5-4. MINIMA ALONG OTHER THAN ESTABLISHED AIRWAYS OR ROUTES

Protect airspace along other than established airways or routes as follows: (See FIG 6-5-4.)

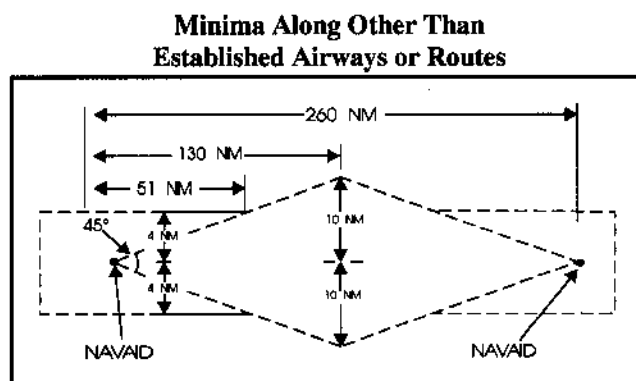


FIG 6-5-4

#### REFERENCE-

P/CG Term- Airway.

P/CG Term- Route.

a. Direct courses and course changes of 15 degrees or less:

1. Via NAVAID's or radials FL 600 and below- 4 miles on each side of the route to a point 51 miles from the NAVAID, then increasing in width on a  $4\frac{1}{2}$  degree angle to a width of 10 miles on each side of the route at a distance of 130 miles from the NAVAID.

2. Via degree-distance fixes for aircraft authorized under para 4-4-3, Degree-Distance Route Definition for Military Operations.

(a) Below FL 180- 4 miles on each side of the route.

(b) FL 180 to FL 600 inclusive- 10 miles on each side of the route.

3. Via degree-distance fixes for RNAV flights above FL 450- 10 miles on each side of the route.

#### NOTE-

Degree-distance RNAV flight (random routes) at FL 450 and below are provided radar separation.

b. When course change is 16 degrees through 90 degrees, protect the airspace on the overflown side beginning at the point where the course changes as follows: (See FIG 6-5-5.)

**Overflown Side Minima  
16 to 90 Degrees**

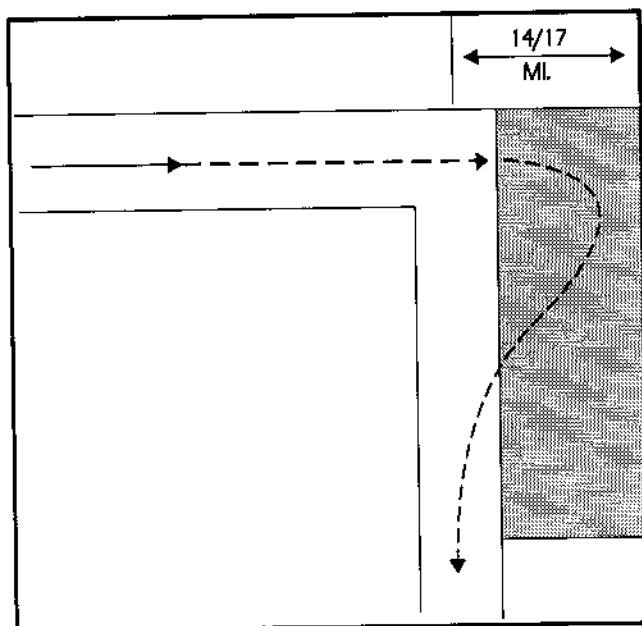


FIG 6-5-5

1. Below FL 180- same as subparas a1 or 2.
2. FL 180 to FL 230 inclusive- 14 miles.
3. Above FL 230 to FL 600 inclusive- 17 miles.

c. When course change is 91 degrees through 180 degrees, protect the airspace on the overflown side beginning at the point where the course changes as follows: (See FIG 6-5-6.)

1. Below FL 180- same as subparas a1 or 2.
2. FL 180 to FL 230 inclusive- 28 miles.
3. Above FL 230 to FL 600 inclusive- 34 miles.

**Overflown Side Minima  
91 to 180 Degrees**

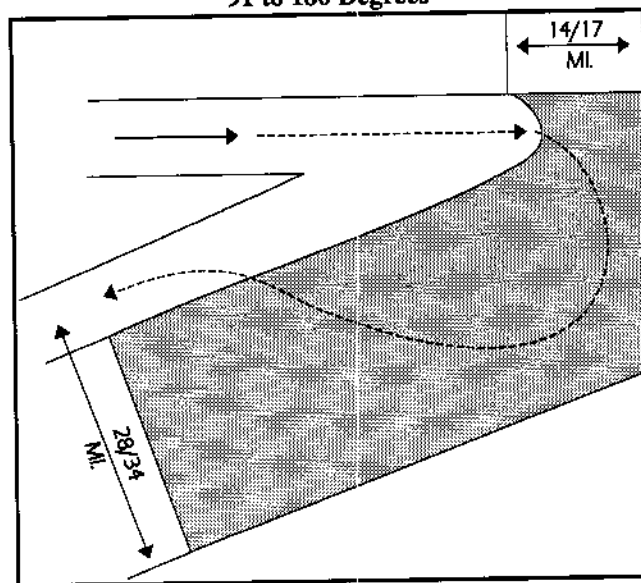


FIG 6-5-6

d. After the course changes specified in subparas b or c have been completed and the aircraft is back on course, the appropriate minima in subpara a may be used.

**REFERENCE-**

FAAO 7110.65, Military Operations Above FL 600, Para 9-3-11.

### 6-5-5. RNAV MINIMA- DIVERGING/CROSSING COURSES

Consider lateral separation to exist when an RNAV aircraft is beyond the point where the lateral protected airspace of that aircraft has ceased to overlap the lateral protected airspace of another by at least:  
(See FIG 6-5-7 and FIG 6-5-8.)

RNAV Minima

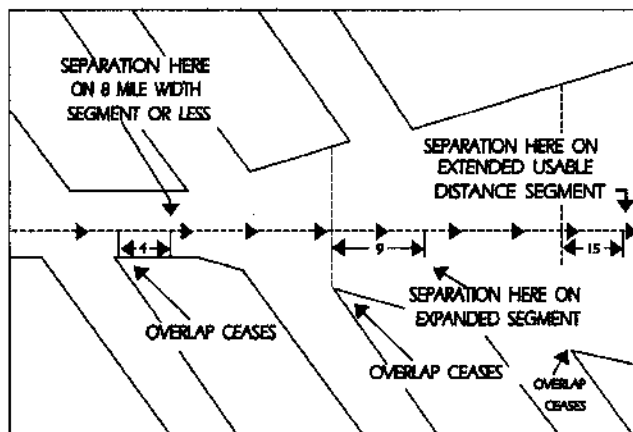


FIG 6-5-7

a. When operating along a route that is 8 miles or less in width- *4 miles*.

b. When operating along an expanded route- *9 miles*, except that *15 miles* shall be applied along that portion of any route segment requiring extended usable distance limitation beyond 130 miles of the reference facility.

RNAV Minima

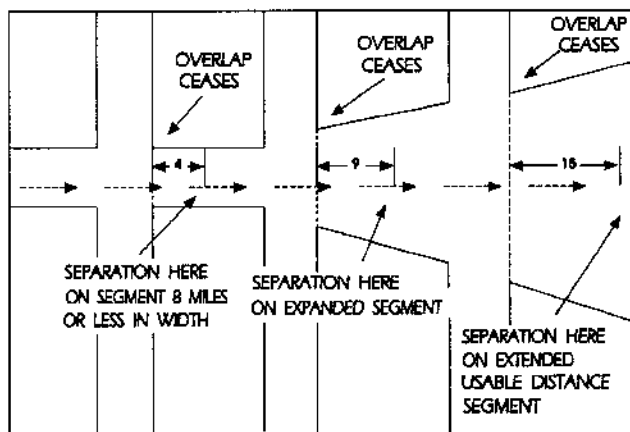


FIG 6-5-8